



Comparison between clinical and ultrasound finding in patients with vitreous hemorrhage

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Introduction

Vitreous hemorrhage is defined as extravasation of blood into one of the several potential spaces formed within and around the vitreous body¹. Vitreous hemorrhage can be caused by the pathological mechanisms like disruption of normal retinal vessels, bleeding from diseased retinal vessels or abnormal new vessels, and extension of hemorrhage through the retina from other sources². Vitreous hemorrhage presents clinically as a shower of floaters with blurring of vision. B-scan ultrasound is an important part of ophthalmic diagnosis because of its ability to detect, outline and characterize the nature of soft tissue of eyeball and orbit, regardless the degree of ocular media transparency.

We conducted a prospective study of the underlying causes of dense vitreous hemorrhage. The clinical findings were determined after the vitreous hemorrhage was reabsorbed (after 6 weeks) or following vitreous surgery, and were compared with the B-scan ultrasound findings.

Material and methods

A hospital based prospective comparative clinical study at a tertiary care centre was conducted. 110

eyes of 100 patients over a period of 2 years were examined.

Patients with dense obscured fundus with history of sudden diminution of vision with flashes and floaters with associated systemic diseases like hypertension and diabetes were included in the study. The ophthalmic examination included visual acuity, slit lamp examination, fundus examination, indirect ophthalmoscopy and B-scan ultrasound.

Presence and the exact distribution of areas of retinal detachment and the presence of posterior vitreous detachment, retinal tear, intraocular foreign body, and choroidal detachment associated with vitreous hemorrhage were recorded.

Results

Out of 110 eyes examined, vitreous hemorrhage was observed in 109 cases (99.09%). Vitreous hemorrhage was associated with retinal detachment in 29 cases (23.36%); choroidal detachment in 14 cases (12.72%); retinal tear in 11 cases (10%); vitreous detachment in 3 cases (2.72%); intraocular foreign body in 2 cases (1.81%) and posterior wound exit in 1 case (0.90%).

Out of 100 patients examined 57% were males and 43% females; 40% were of age group 50-59 years, mean age was (49.18+_16.82) years.

Most common cause of vitreous hemorrhage was proliferative diabetic retinopathy (PDR) in 38 eyes (34.54%) followed by blunt trauma in 22 eyes (20%) and penetrating trauma in 18 eyes (16.36%); vitreous detachment was seen in 10 eyes (9.09%). Other minor causes were age related macular degeneration, post intraocular surgery, unknown and retinal vein occlusion.

Discussion

Vitreous hemorrhage is a major sequelae to various ocular pathology and trauma. B-scan ultrasound was found to be sensitive as well as specific for the diagnosis of vitreous hemorrhage and associated pathologies.

The most common cause of vitreous hemorrhage was found to be proliferative diabetic retinopathy followed by blunt trauma, penetrating trauma and vitreous detachment. A previous study by *R Robinowitz et al*³ had similar observation where proliferative diabetic retinopathy was the most common cause of vitreous hemorrhage (35%) followed by penetrating trauma (20%) and post intraocular surgery (13%). *M Sun et al*⁴ studied 218 eyes in which proliferative diabetic retinopathy was the principal cause of vitreous hemorrhage (37.31%), second being ocular trauma (24.3%) and third retinal vein occlusion (18.65%). B-scan ultrasound detected all cases of retinal detachment associated with vitreous hemorrhage which were confirmed clinically post operatively, unlike *R Robinowitz et al*³ study in which B-scan ultrasound correctly identified anatomic position of retina in 93.3% cases with 6.6% false positives. Choroidal detachment was observed on B-scan in 13 cases (92.85%) and clinically in 14 cases. Similarly in study conducted by *R Robinowitz et al*³, there was clinical evidence of choroidal detachment, together with other pathologies, in 12 eyes (11%). Of these, 11 were correctly identified on B-scan.

B-scan ultrasound detected retina tear in 81.81% cases. Similar results were observed by *R Robinowitz et al*³.

Intraocular foreign bodies were detected correctly in 100% cases. Comparable results were seen in study by *R Robinowitz et al*³.

Conclusion

Sensitivity of B-scan in detecting vitreous hemorrhage was 99.09% and specificity 100% and diagnostic power 99.10%. Thus B scan is an useful modality in diagnosis of vitreous hemorrhage and associated ocular pathologies.

Conflicts of interest: None

References

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